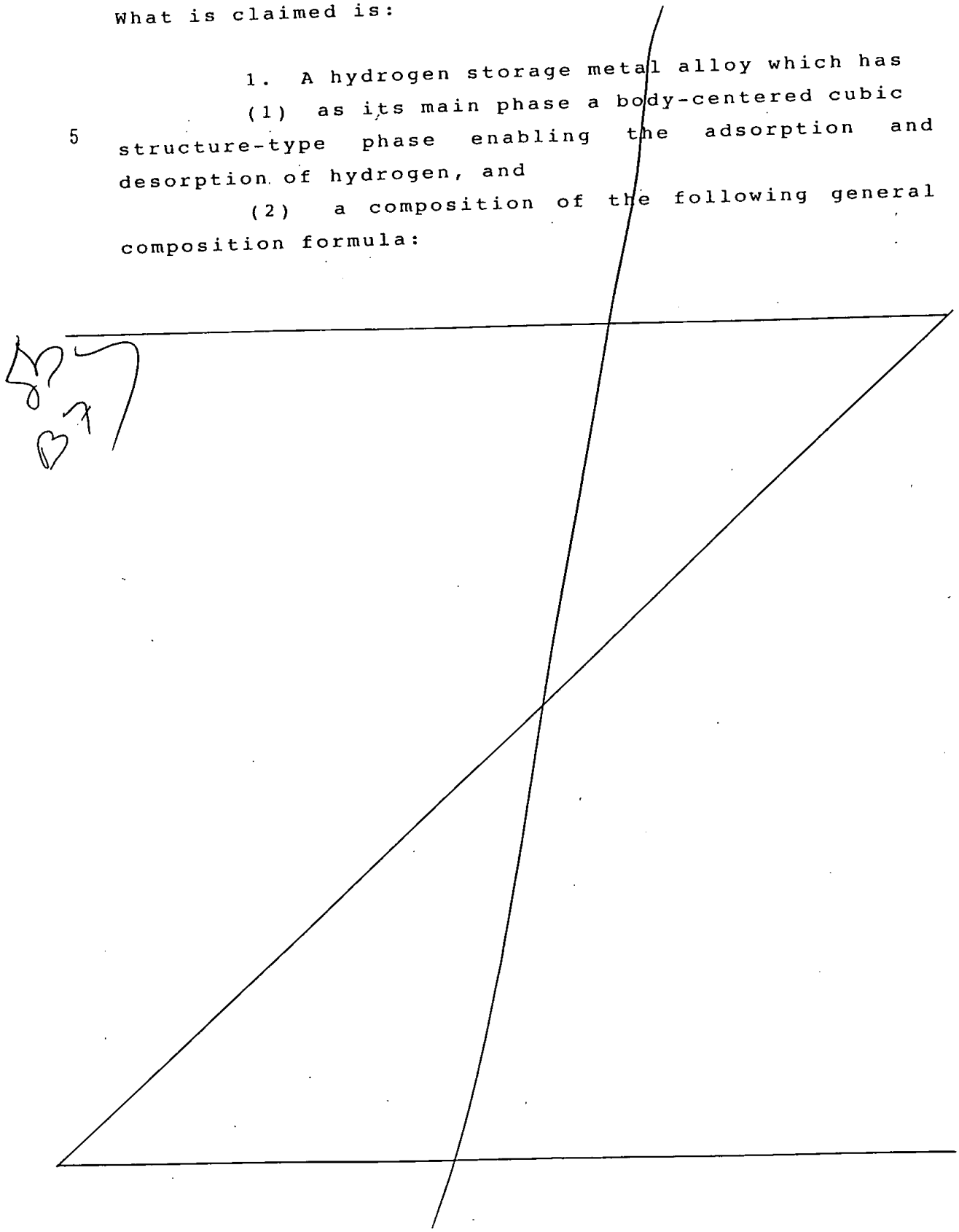
What is claimed is:

1. A hydrogen storage metal alloy which has

(1) as its main phase a body-centered cubic structure-type phase enabling the adsorption and desorption of hydrogen, and

(2) a composition of the following general composition formula:



$$Ti_{(100-a-0.4b)}Cr_{(a-0.6b)}M_b$$

wherein M is vanadium (V), provided that 20 ≦ a (at%) ≦ 80, and 0 ≦ b (at%) ≦ 10.

2. The hydrogen storage metal alloy according to Claim 1 wherein a level of the constituent element V contained in the alloy is within a range of 6 ± 2 at %.

3. A hydrogen storage metal alloy which has

(1) as its main phase a body-centered cubic structure-type phase enabling the adsorption and desorption of hydrogen, and

(2) a composition of the following general composition formula:

$$Ti_{(100-a-0.4b)}Cr_{(a-0.6b)}M_b$$

wherein M is at least a member selected from molybdenum (Mo) and tungsten (W), provided that 20 ≦ a (at%) ≦ 80, and 0 ≦ b (at%) < 5.

4. The hydrogen storage metal alloy according to Claim 3 wherein a level each of the constituent element Mo and/or W contained in the alloy is within a range of 3 ± 1.5 at %.

5. A hydrogen storage metal alloy which has

(1) as its main phase a body-centered cubic structure-type phase enabling the adsorption and desorption of hydrogen, and

(2) a composition of the following general composition formula:

$$Ti_{(100-a-0.4b)}Cr_{(a-0.6b)}V_{(b-c)}M_c$$

wherein M is at least a member selected from molybdenum (Mo) and tungsten (W), provided that $20 \leqq a$ (at%) $\leqq 80$, $0 \leqq b$ (at%) $\leqq 10$, and $0 \leqq c$ (at%) < 5.

6. The hydrogen storage metal alloy according to any of Claims 1 to 5 wherein the element X is admixed at its atom % concentration, d (at%), ranging within $0 \leqq d$ (at%) $\leqq 20$, the atomic radius of which is larger than that of Cr but smaller than that of Ti.

7. The hydrogen storage metal alloy according to Claim 6 wherein the element X is at least one or more members selected from the group consisting of Al, Ge, Ga, Si, Au and Pt.

8. The hydrogen storage metal alloy according to any of Claims 1 to 7 wherein the element T is admixed at its atom % concentration, e (at%), ranging within $0 \leqq e$ (at%) $\leqq 10$ and includes at least one or more members selected from the group consisting of Nb, Ta, Mn, Fe, Al, B, C, Co, Cu, Ga, Ge, Ln (a variety of lanthanoid metals), N, Ni, P, and Si.

9. A process for producing a hydrogen storage metal alloy which is for the production of the hydrogen storage metal alloy having as the main phase a body-centered cubic structure-type phase enabling the adsorption and desorption of hydrogen, and

comprises the steps of:

(1) melting a starting alloy brought to a predetermined element ratio to form a uniform heat (melting step),

(2) keeping the homogenized alloy heat at a temperature within a range just below the melting point of the alloy for a predetermined time (heat treatment), and

(3) rapidly cooling the alloy after the heat

treatment (quenching step).

10. The process of Claim 9 wherein melting and solidification may be carried out repeatedly predetermined times at the aforementioned melting step.

11. The process of Claim 9 or 10 wherein the predetermined time range at the aforementioned heat treatment is from 1 minute to 100 hours.

12. The process according to any of Claims 9 to 11 wherein the element ratios are those described in any of Claims 1 to 8 regarding the hydrogen storage metal alloy products.

add a4